AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently amended) A method of classifying a cardiac response to a pacing stimulation, comprising:

delivering the pacing stimulation to a heart;

establishing a first classification window subsequent to delivery of the pacing stimulation;

sensing a cardiac signal in the first classification window;

establishing a second classification window if a trigger characteristic of the cardiac signal is detected in the first classification window;

sensing the cardiac signal in the second classification window if the second classification window is triggered; and

classifying the cardiac response to the pacing stimulation based on detection of one or more ~~characteristics~~ morphological features of the cardiac signal with respect to one or more detection regions of the classification windows, the detection regions defined in terms of amplitude and time.

2. (Original) The method of claim 1, further comprising triggering one or more additional cardiac response classification windows based on one or more additional trigger characteristics.

3. (Original) The method of claim 2, wherein triggering the one or more additional cardiac response classification windows based on the one or more additional trigger characteristics comprises triggering the one or more additional cardiac response classification windows based on lack of sufficient information to classify the cardiac response.

4. (Original) The method of claim 1, wherein delivering the pacing stimulation comprises delivering a unipolar pacing stimulation.

5. (Original) The method of claim 1, wherein delivering the pacing stimulation comprises delivering a bipolar pacing stimulation.

6. (Original) The method of claim 1, wherein delivering the pacing stimulation to the heart comprises delivering the pacing stimulation a right atrium.

7. (Original) The method of claim 1, wherein delivering the pacing stimulation to the heart comprises delivering the pacing stimulation to a left atrium.

8. (Original) The method of claim 1, wherein delivering the pacing stimulation to the heart chambers comprises delivering a first pacing stimulation to a right ventricle.

9. (Original) The method of claim 1, wherein delivering the pacing stimulation to the heart chambers comprises delivering a first pacing stimulation to a left ventricle.

10. (Original) The method of claim 1, wherein:

delivering the pacing stimulation to the heart comprises delivering the pacing stimulation using an electrode combination; and

sensing the cardiac signal following the pacing stimulation comprises sensing the cardiac signal using the same electrode combination.

11. (Original) The method of claim 1, wherein:

delivering the pacing stimulation to the heart comprises delivering the pacing stimulation using an electrode combination; and

sensing the cardiac signal following the pacing stimulation comprises sensing the cardiac signal using a different electrode combination.

12. (Original) The method of claim 1, wherein sensing the cardiac signal following the pacing stimulation comprises sensing the cardiac signal using an electrode combination that reduces a pacing artifact signal relative to an evoked response signal.

13. (Original) The method of claim 1, wherein the trigger characteristic comprises a feature of the cardiac signal detected within a timing range.

14. (Original) The method of claim 1, wherein the trigger characteristic comprises a feature of the cardiac signal detected within an amplitude range.

15. (Original) The method of claim 1, wherein the trigger characteristic comprises a peak of the cardiac signal detected within an amplitude range and a time range.

16. (Original) The method of claim 1, wherein establishing the second classification window comprises defining the second classification window subsequent to the first classification window.

17. (Original) The method of claim 16, wherein establishing the second classification window subsequent to the first classification window comprises defining a delay between the first classification window and the second classification window.

18. (Previously Presented) The method of claim 1, wherein classifying the cardiac response comprises classifying the cardiac response as a captured response.

19. (Previously Presented) The method of claim 1, wherein classifying the cardiac response comprises classifying the cardiac response as a non-captured response combined with an intrinsic beat.

20. (Previously Presented) The method of claim 1, wherein classifying the cardiac response comprises classifying the cardiac response as a non-captured response.

21. (Previously Presented) The method of claim 20, further comprising delivering a back up pacing stimulation if the cardiac response is classified as the non-captured response.

22. (Currently amended) The method of claim 21, wherein one or more additional cardiac response classification windows are triggered if the ~~pace~~ back up pacing stimulation is delivered.

23. (Currently amended) The method of claim 1, wherein classifying the cardiac response based on detection of the one or more ~~characteristics~~ morphological features comprises classifying the cardiac response as a non-captured response if an amplitude of a peak of the cardiac signal remains below a threshold value.

24. (Currently amended) The method of claim 1, wherein classifying the cardiac response based on detection of the one or more ~~characteristics~~ morphological features of the cardiac signal comprises classifying the cardiac response as a non-captured response added to an intrinsic beat based on detection of a peak of the cardiac signal detected in a detection region of the first classification window.

25. (Currently amended) The method of claim 24, wherein classifying the cardiac response based on detection of the one or more ~~characteristics~~ morphological features of the cardiac signal comprises:

defining an intrinsic detection region in the first classification window; and

detecting a peak of the cardiac signal in the intrinsic detection region.

26. (Currently amended) The method of claim 1, wherein classifying the cardiac response based on detection of the one or more ~~characteristics~~ morphological features of the cardiac signal comprises classifying the cardiac response as a fusion/pseudofusion beat based on one or more ~~characteristics~~ morphological features of the cardiac signal detected in the first classification window.

27. (Currently amended) The method of claim 26, wherein classifying the cardiac response as a fusion/pseudofusion beat based on the one or more ~~characteristics~~ morphological features of the cardiac signal detected in the first classification window comprises classifying the cardiac response as a fusion/pseudofusion beat based on a peak of the cardiac signal detected in the first classification window.

28. (Currently amended) The method of claim 1, wherein classifying the cardiac response based on detection of the one or more ~~characteristics~~ morphological features of the cardiac signal comprises classifying the cardiac response as a fusion/pseudofusion beat based on the one or more ~~characteristics~~ morphological features of the cardiac signal detected in the first and the second classification windows.

29. (Currently amended) The method of claim 28, wherein classifying the cardiac response as the fusion/pseudofusion beat based on detection of the one or more ~~characteristics~~ morphological features of the cardiac signal detected in the first and the second classification windows comprises classifying the cardiac response as the fusion/pseudofusion beat based on a first peak of the cardiac signal detected in the first classification window and a second peak of the cardiac signal detected in the second classification window.

30. (Currently amended) The method of claim 1, wherein classifying the cardiac response based on detection of the one or more ~~characteristics~~ morphological features of the cardiac signal comprises classifying the cardiac response as a captured response based on

first and second ~~characteristics~~ morphological features respectively detected in the first and the second classification windows.

31. (Previously Presented) The method of claim 1, wherein classifying the cardiac response comprises classifying the cardiac response as a captured response based on first and second peaks respectively detected in the first and the second classification windows.

32. (Currently amended) The method of claim 1, wherein classifying the cardiac response comprises:

defining first and second capture detection regions; and

detecting a first peak of the cardiac signal in the first capture detection region;

detecting ~~the~~ a second peak of the cardiac signal in the second capture detection region; and

classifying the cardiac response as a captured response.

33. (Currently amended) The method of claim 1, wherein classifying the cardiac response comprises ~~classifying the cardiac response comprises~~ defining one or more detection regions respectively associated with one or more cardiac response types.

34. (Previously Presented) The method of claim 33, wherein defining the one or more detection regions comprises defining one or more capture detection regions associated with a captured response.

35. (Previously Presented) The method of claim 33, wherein defining the one or more detection regions comprises defining one or more intrinsic detection regions associated with a non-captured response combined with an intrinsic beat.

36. (Previously Presented) The method of claim 33, wherein the detection regions are characterizable as functions of time and amplitude.

37. (Previously Presented) The method of claim 33, wherein defining the one or more detection regions comprises initializing the detection regions.

38. (Previously Presented) The method of claim 33, wherein defining the one or more detection regions comprises adapting the detection regions.

39. (Currently amended) A medical device, comprising:

a pulse delivery system configured to deliver a pacing stimulation to a heart;

a sensing system configured to a sense cardiac signal following delivery of the pacing stimulation;

a control system, coupled to the sensing system, and configured to establish a first classification window subsequent to delivery of the pacing stimulation, establish a second classification window if a trigger characteristic of the cardiac signal is detected in the first classification window, and classify the cardiac response to the pacing stimulation based on detection of one or more ~~characteristics~~ morphological features of the sensed cardiac signal with respect to one or more detection regions of the classification window, the detection regions defined in terms of amplitude and time.

40. (Previously Presented) The medical device of claim 39, wherein the pulse delivery system is configured to deliver the pacing stimulation to a right ventricle.

41. (Previously Presented) The medical device of claim 39, wherein the pulse delivery system is configured to deliver the pacing stimulation to a right atrium.

42. (Previously Presented) The medical device of claim 39, wherein the pulse delivery system is configured to deliver the pacing stimulation to a left ventricle.

43. (Previously Presented) The medical device of claim 39, wherein the pulse delivery system is configured to deliver the pacing stimulation to a left atrium.

44. (Previously Presented) The medical device of claim 39, wherein the sensing system is configured to sense the cardiac signal using a defibrillation electrode.

45. (Previously Presented) The medical device of claim 39, wherein the sensing system is configured to sense the cardiac signal using a right ventricular coil electrode and a can electrode.

46. (Previously Presented) The medical device of claim 39, wherein the sensing system is configured to sense the cardiac signal using a right ventricular coil electrode and a can electrode tied to an SVC coil electrode.

47. (Previously Presented) The medical device of claim 39, wherein the trigger characteristic comprises a characteristic of the cardiac signal detected within an amplitude range and a time range.

48. (Previously Presented) The medical device of claim 39, wherein the second classification window is established subsequent to the first classification window.

49. (Previously Presented) The medical device of claim 39, wherein the control system is configured to classify the cardiac response as a captured response.

50. (Previously Presented) The medical device of claim 39, wherein the control system is configured to classify the cardiac response as a fusion/pseudofusion beat.

51. (Previously Presented) The medical device of claim 39, wherein the control system is configured to classify the cardiac response as a non-captured response combined with an intrinsic beat.

52. (Previously Presented) The medical device of claim 39, wherein the control system is configured to classify the cardiac response as a non-captured response.

53. (Previously Presented) The medical device of claim 39, wherein the pacing stimulation delivery system is further configured to deliver a back up pacing stimulation if the cardiac response is classified as a non-captured response.

54. (Previously Presented) The medical device of claim 39, wherein the control system is configured to define one or more detection regions respectively associated with one or more cardiac response types.

55. (Previously Presented) The medical device of claim 54, wherein the control system is configured to initialize the one or more detection regions.

56. (Previously Presented) The medical device of claim 54, wherein the control system is configured to adapt the one or more detection regions.

57. (Previously Presented) The medical device of claim 39, wherein the control system is configured to define one or more capture detection regions associated with a captured response.

58. (Previously Presented) The medical device of claim 39, wherein the control system is configured to define one or more intrinsic detection regions associated with a non-captured response combined with an intrinsic beat.

59. (Previously Presented) The medical device of claim 39, wherein the detection regions are characterizable as functions of time and amplitude.

60. (Previously Presented) A medical system, comprising:

means for delivering the pacing stimulation to a heart;

means for establishing a first classification window subsequent to delivery of the pacing stimulation;

means for sensing a cardiac signal in the first classification window;

means for establishing a second classification window if a trigger characteristic of the cardiac signal is detected in the first classification window;

means for sensing the cardiac signal in the second classification window if the second classification window is triggered; and

means for classifying the cardiac response to the pacing stimulation based on one or more characteristics of the cardiac signal.

61. (Previously Presented) A medical system, comprising:

means for delivering the pacing stimulation to a heart;

means for establishing a first classification window subsequent to delivery of the pacing stimulation;

means for sensing a cardiac signal in the first classification window;

means for establishing a second classification window if a trigger characteristic of the cardiac signal is detected in the first classification window;

means for sensing the cardiac signal in the second classification window if the second classification window is triggered;

means for defining one or more detection regions respectively associated with one or more cardiac response types;

means for detecting one or more cardiac signal peaks; and

means for classifying the cardiac response to the pacing stimulation based on a relationship between the cardiac signal peaks and the detection regions.